

Chaos cyaneus n. sp., a Large Ameba of *Proteus* Type

(1 Figure)

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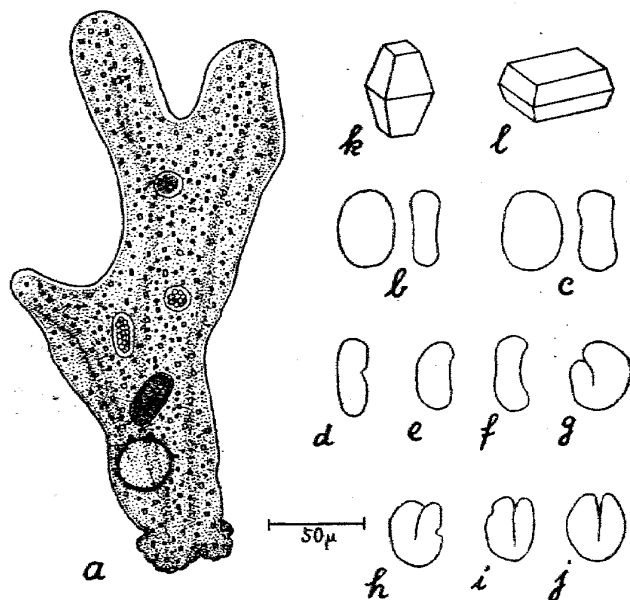
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The new large ameba was originally found in a small permanent pool in Kitasirakawa, Kyoto in June, 1937. Since September it has been cultured, and several pure lines have been isolated. Some of these lines are still preserved in the laboratory. The standard culture medium is as follows: 50 c.c. of water from the pool are poured in a Petri's dish (6 c.m. in diameter), and two rice grains are added to it, and the dish is kept at 20°C. Observations were made on both living and stained materials with a Zeiss microscope.

Genus *Chaos* LINNAEUS, 1769.*Chaos cyaneus* n. sp.

There is no noticeable difference in size between wild and cultured individuals. The length of the specimens in locomotion averages 380 μ (max. length 470 μ , min. length 260 μ). The globular form common in old cultures averages 146 μ in diameter (max. diameter 180 μ , min. diameter 120 μ). The general shape is changeable: locomotive, monopodal, and floating forms may be distinguished. The locomotive form is of the typical *Proteus* type, and more or less palmate with broad pseudopods at the anterior half and some tail pieces in the form of the swellings at the posterior end (fig. a). In a pseudopod ectoplasm, plasmasol and plasmagel may be distinguished¹⁾. Each pseudopod is marked with a few distinct ridges of



a, a locomotive form with three ectoplasmic ridges and a tail piece; b, c, discoid nuclei and their side views; d-j, irregular-shaped nuclei; d-f, side views, g-j, nuclei with invagination; k, l, crystals of two kinds. The scale is for a-j.

1) cf. MAST, S. O. (1926) Jour Morph. Phys., 41, 347-425.

ectoplasm such as SCHAEFFER²⁾ has described in *Chaos diffuens* MÜLLER (= *Amoeba proteus* PALLAS).

The monopodal form occurs in more or less old cultures. It is clavate or antler-shaped with two or three pseudopods, and much more elongate than the locomotive form, so the same individual 300μ long in the locomotive state often becomes 500μ in the monopodal state. The floating form occurs in the clear water, as well as in the cultures. The pseudopods of this form which are radiated from the central protoplasm, are blunt, about 10 in number, and less than three times as long as the central part. The colour of the protoplasm is distinctly bluish under a low power (Zeiss obj. A) by transmitted light: in the old globular form it is yellowish, and sometimes partly bluish and partly yellowish.

The nucleus is single and of the discoid type of SCHAEFFER. Some irregularities in shape may be found as shown in figs. d-j. It measures 38μ in the long diameter (max. diameter 48μ , min. diameter 33μ) and 15μ in thickness (max. thickness 28μ , min. thickness 10μ) on the average. A number of small chromatin granules are arranged in layers under the nuclear membrane; no distinct karyosome is present. The contractile vacuole is usually single, and $40-50\mu$ in diameter. In some cases two or three small vacuoles appear simultaneously and fuse into one in the course of diastole. Both the nucleus and contractile vacuole are placed usually in the posterior half of the individual in locomotion. Many bipyramidal crystals with truncated apices are imbedded in the endoplasm. Two types both belonging to the ortholombic system may be distinguished: one with the main axis much longer than the other axes, $3\mu \times 2\mu \times 1\mu$ (fig. k), and the other with the main axis much shorter than the other axes, $2\mu \times 4.5\mu \times 3.8\mu$ (fig. l). The excretion or nutritive spheres are present in large numbers, pale bluish-green, and 5μ in maximum diameter.

Remarks.—The new ameba is more or less allied to *Chaos diffuens* MÜLLER (= *Amoeba proteus* PALLAS) in having the ridges of the ectoplasm and the invagination of the nucleus, but may be distinguished from it in the features tabulated below:

Table

	<i>Chaos diffuens</i> MÜLLER	<i>Chaos cyaneus</i> n. sp.
Size in locomotion	600μ ; max. 1200μ , min. 300μ	380μ ; max. 470μ , min. 260μ
Colour of protoplasm	yellowish	distinctly bluish
Size of nucleus	46μ in diameter, 15μ in thickness	38μ in diameter, 15μ in thickness
Crystals	only one kind (as fig. k)	two kinds
Max. diameter of nutritive spheres	$8-10\mu$, according to different authors	5μ

2) SCHAEFFER, A. (1917) Arch. f. Protistenk., 37, 204-228.

——— (1926) Publ. Carnegie Inst. Washington, 345, 1-116.